CLEAN VERSION OF CLAIMS

4720ACSCVITATE 27 APR 2006

Claim 1. A vehicle suspension, comprising:

a lower arm having an inboard end and an outboard end; an upper control arm having an inboard end and an outboard end; an actuator comprising a drive mechanism and at least one actuator arm; the actuator arm pivotally connected to the lower arm; the actuator arm pivotally connected to the upper control arm; and the drive mechanism connected to the actuator arm.

Claim 2. The vehicle suspension of claim 1, further comprising:

a cammed cylinder in fluid communication with an actuation mechanism that at least partially controls the actuator arm;

wherein the actuator is motively connected to at least one of the lower arm and the upper control arm by the actuator arm

Claim 3. The vehicle suspension of claim 2, wherein the actuation mechanism comprises a mechanical shock absorber and an actuator line connects the cammed cylinder to the mechanical shock absorber.

Claim 4. The vehicle suspension of claim 1, further comprising a mechanical shock absorber pivotally connected to the actuator arm.

Claim 5. The vehicle suspension of claim 4, further comprising:

a cam member supported on the lower arm;

a cammed cylinder having a piston motively coupled to the cam member; and an actuator line connecting the cammed cylinder to the mechanical shock absorber.

Claim 6. The vehicle suspension of claim 1, further comprising a mechanical link pivotally connected to the actuator arm.

Claim 7. The vehicle suspension of claim 1, further comprising a hub assembly pivotally connected to the outboard ends of the lower arm and the upper control arm, wherein pivotal connections of the actuator arm, the lower arm, the upper control arm, and the hub assembly generally form a parallelogram.

Claim 8. The vehicle suspension of claim 1, further comprising: an actuator pump coupled to an actuator feed line; wherein:

the actuator comprises a cylinder having a piston motively coupled to the actuator feed line;

one of the cylinder and the piston is supported on one of the lower arm and the upper control arm; and

the other of the piston and the cylinder is motively connected to the actuator arm.

Claim 9. A frame and suspension for a vehicle, comprising:

a frame;

a lower arm having an inboard end coupled to the frame and an outboard end; an upper control arm having an inboard end and an outboard end; an actuator comprising a drive mechanism and at least one actuator arm; the actuator arm pivotally connected to the lower arm; the actuator arm pivotally connected to the upper control arm; and the drive mechanism connected to the actuator arm.

Claim 10. The frame and suspension for a vehicle of claim 9, further comprising:

a cammed cylinder having a piston in fluid communication with an actuation mechanism that at least partially controls the actuator arm;

wherein the actuator is motively connected to at least one of the lower arm and the upper control arm by the actuator arm.

Claim 11. The frame and suspension for a vehicle of claim 10, wherein the actuation mechanism comprises a mechanical shock absorber and the actuator line connects the cammed cylinder to the mechanical shock absorber.

Claim 12. The frame and suspension for a vehicle of claim 9, further comprising a mechanical shock absorber pivotally connected to the actuator arm.

Claim 13. The frame and suspension for a vehicle of claim 12, wherein the mechanical shock absorber is pivotally connected to the frame.

Claim 14. The frame and suspension for a vehicle of claim 12, further comprising:
a cam member supported on the lower arm;
a cammed cylinder having a piston motively coupled to the cam member; and
an actuator line connecting the cammed cylinder to the mechanical shock
absorber.

Claim 15. The frame and suspension for a vehicle of claim 14, wherein the cammed cylinder is supported on the frame.

Claim 16. The frame and suspension for a vehicle of claim 9, further comprising a mechanical link pivotally connected to the actuator arm.

Claim 17. The frame and suspension for a vehicle of claim 16, wherein the mechanical link is pivotally connected to the frame.

Claim 18. The frame and suspension for a vehicle of claim 9, further comprising a hub assembly pivotally connected to the outboard ends of the lower arm and the upper control arm, wherein pivotal connections of the actuator arm, the lower arm, the upper control arm, and the hub assembly generally form a parallelogram.

Claim 19. The frame and suspension for a vehicle of claim 9, further comprising a mechanical link pivotally connected to each of the actuator arm and the frame, wherein the parallelogram is a first parallelogram and pivotal connections between the mechanical link, the frame, the actuator arm, and the lower arm form a second parallelogram.

Claim 20. The frame and suspension for a vehicle of claim 9, further comprising: an actuator pump coupled to an actuator feed line; wherein:

the actuator comprises a cylinder having a piston motively coupled to the actuator feed line;

one of the cylinder and the piston is supported on one of the lower arm and the upper control arm; and

the other of the piston and the cylinder is motively connected to the actuator arm.

Claim 21. The frame and suspension for a vehicle of claim 9, wherein:

the frame is a vehicle frame;

the suspension comprises the lower arm, the upper control arm, the actuator arm, and the actuator as a first arm assembly; and

wherein the suspension further comprises at least a second arm assembly similar to the first arm assembly.

Claim 22. The frame and suspension for a vehicle of claim 21, wherein each arm assembly includes a cammed cylinder fluidly connected to at least one mechanical shock absorber.

Claim 23. The frame and suspension for a vehicle of claim 22, wherein the cammed cylinders have pistons that move therein to provide a greater or lesser effective volume for each shock absorber.

Claim 24. The frame and suspension for a vehicle of claim 23, wherein the effective volume is decreased as the respective arm assembly is rotated through an arc toward the frame.

Claim 25. The frame and suspension for a vehicle of claim 23, wherein the effective volume is decreased as the respective arm assembly is rotated through an arc away from the frame.